

JK Lakshmipat University, Jaipur
INSTITUTE OF ENGINEERING AND TECHNOLOGY

End Term Examination (Regular), December 2021
B. Tech. in Electrical & Electronics Engineering, Semester III

Roll No.....

EE1101: Electronic Devices and Circuits

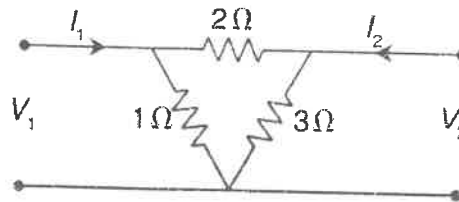
Time: 2 hrs

Max. Marks: 30

Instructions to students:

1. Do not write anything other than your roll number on question paper
2. Writing appropriate units, nomenclature, and drawing neat sketches/schematics/ flow chart wherever required are an integral part of the answer
3. Use of programmable calculator, class lecture notes/handouts, etc., are not allowed
4. Assume suitable data wherever required and mention it clearly

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|-----|---|--------------------|
| Q.1 | Design a collector to base bias circuit to have $V_{ce} = 5\text{ V}$ and $I_c = 5\text{ mA}$, when the supply voltage is 15 V and $\beta_{dc} = 100$; assume Si transistor. | 4
(CO 1 & 2) |
| Q.2 | In a full wave rectifier, the input is from $30 - 0 - 30\text{ V}$ transformer. The load and diode forward resistance are $100\ \Omega$ and $10\ \Omega$ respectively. Derive and Calculate the average voltage and rectifier efficiency. | 5
(CO 1 & 2) |
| Q.3 | Design a class B push pull amplifier to show the crossover distortion (180° output swing). What is its practical efficiency? | 5
(CO 2, 3 & 5) |
| Q.4 | Compare the drain characteristics for n-channel and p-channel JFET and classify their various working regions. Which equation does the graph follow? | 6
(CO 1, 2 & 3) |
| Q.5 | Show the h-parameters in terms of y-parameters. Find the h-parameters of the circuit shown below. | 5
(CO 4) |



- Q.6 Discuss the series connection of two-port networks. Two identical sections of Fig. 6.76 are connected in series. Obtain the z-parameters of the resulting network and verify by direct calculation. 5
(CO 4)

